Amendments to the Claims:

The following is a listing of the claims in the application:

Claim 1 (Previously Amended) A method for performing a two-dimensional (2D) inverse discrete cosine transform (IDCT) on a series of 2D-transform coefficient blocks, wherein the method comprises:

receiving multiple coefficient blocks from the series of 2D-transform coefficient blocks;

grouping together respective elements from the multiple coefficient blocks to produce one block of 2D coefficient vectors; and

operating on the block of 2D coefficient vectors with SIMD instructions to carry out the 2D-IDCT on the multiple coefficient blocks.

Claim 2 (Original) The method of claim 1, wherein the SIMD instructions are floating point instructions.

Claim 3 (Original) The method of claim 1, wherein the multiple coefficient blocks consist of exactly two coefficient blocks at a time.

Claim 4 (Original) The method of claim 1, wherein the operating includes:

carrying out a one-dimensional (1D) IDCT on each row of 2D coefficient vectors with SIMD instructions to produce a block of 1D transform coefficient vectors;

carrying out a 1D-IDCT on each column of 1D transform coefficient vectors with SIMD instructions to produce inverse-transformed data value vectors.

Claim 5 (Original) The method of claim 4, further comprising:

isolating and arranging elements of the inverse-transformed data value vectors to form multiple inverse-transformed data blocks that correspond to the multiple coefficient blocks.

Claim 6 (Currently amended) An information carrier medium configured to convey software to a general purpose computer system that supports SIMD instructions, wherein the software comprises a two-dimensional (2D) inverse discrete cosine transform (IDCT) module having:

an input interface configured to receive multiple two-dimensional discrete cosine transform (2D-DCT) coefficient blocks;

a first set of instruction code configured to collect and assemble respective coefficients from the multiple 2D-DCT [[2D-IDCT]] coefficient blocks to form coefficient vectors having one coefficient from each of the 2D-DCT [[2D-IDCT]] coefficient blocks, wherein the relationship between the coefficients of the coefficient vectors, once established, is maintained unaltered in the transform module;

SIMD instructions configured to operate on the coefficient vectors to carry out a 2D-IDCT of the multiple coefficient blocks in parallel; and

a second set of instruction code configured to extract and arrange inverse-transformed elements of the coefficient vectors to produce multiple inverse-transformed data blocks corresponding to the received multiple 2D-DCT coefficient blocks.

Claim 7 (Original) The medium of claim 6, wherein the SIMD instructions include:

a first set of SIMD instructions to perform an IDCT on each row of the coefficient vectors to produce one-dimensional (1D) DCT coefficient vectors; and

a second set of SIMD instructions to perform an IDCT on each column of the 1D-DCT coefficient vectors to produce inverse transformed data vectors.

Claim 8 (Original) The medium of claim 6, wherein the multiple 2D-DCT coefficient blocks consist of exactly two 2D-DCT coefficient blocks.

Claim 9 (Original) The medium of claim 6, wherein the SIMD instructions include floating point instructions.

Claim 10 (Original) The medium of claim 6, wherein the medium is a digital information storage medium that is one of a set consisting of: printed paper, punched paper, magnetic tape, magnetic disk, optical disk, redundant array of independent disks, non-volatile memory array, and volatile memory array.

Claim 11 (Original) The medium of claim 6, wherein the medium is an information transmission medium that is one of a set consisting of: a phone line, a television cable, a wireless link, a satellite link and the Internet.

Claim 12 (Original) A computer that comprises:

memory storing application software and multimedia data; and

a processor that implements a floating point SIMD instruction set, wherein the processor is coupled to the memory and configured to execute the application software,

wherein the application software includes:

a first module which configures the processor to receive multiple blocks of 2D-DCT coefficients;

a second module which configures the processor to inverse transform the multiple blocks of 2D-DCT coefficients in parallel, wherein the second module includes:

a first set of instruction code that configures the processor to collect respective elements from each of the multiple blocks and to assemble the respective elements in a plurality of registers so that each register has a single element from each of the multiple blocks;

a first set of SIMD floating point instructions that operate on the register contents to produce 1D-DCT coefficients of the multiple blocks, wherein each of the plurality of registers has a single 1D-DCT coefficient from each of the multiple blocks;

a second set of SIMD floating point instructions that operate on the register contents to produce inverse transformed coefficients of the multiple blocks, wherein each of the plurality of registers has a single inverse transformed coefficient from each of the multiple blocks; and

a second set of instruction code that configures the processor to isolate and arrange the inverse transformed coefficients to form multiple

multimedia data blocks that correspond to the originally received multiple blocks.

Claim 13 (Original) The computer of claim 12, wherein the multiple blocks of 2D-DCT coefficients consist of exactly two blocks.

Claim 14 (Original) The computer of claim 13, wherein one of the multiple blocks is an all-zero block.

Claim 15 (New) A carrier medium including software instructions executable to implement a method for performing a two-dimensional (2D) inverse discrete cosine transform (IDCT) on a series of 2D-transform coefficient blocks, wherein the method comprises:

receiving multiple coefficient blocks from the series of 2D-transform coefficient blocks;

grouping together respective elements from the multiple coefficient blocks to produce one block of 2D coefficient vectors; and

operating on the block of 2D coefficient vectors with SIMD instructions to carry out the 2D-IDCT on the multiple coefficient blocks.

Claim 16 (New) The carrier medium of claim 15, wherein the SIMD instructions are floating point instructions.

Claim 17 (New) The carrier medium claim 15, wherein the multiple coefficient blocks consist of exactly two coefficient blocks at a time.

Claim 18 (New) The carrier medium of claim 15, wherein the operating includes:

carrying out a one-dimensional (1D) IDCT on each row of 2D coefficient vectors with SIMD instructions to produce a block of 1D transform coefficient vectors;

carrying out a 1D-IDCT on each column of 1D transform coefficient vectors with SIMD instructions to produce inverse-transformed data value vectors.

Claim 19 (New) A computer comprising:

a processor; and

a memory storing software instructions executable by the processor to implement a method for performing a two-dimensional (2D) inverse discrete cosine transform (IDCT) on a series of 2D-transform coefficient blocks, wherein the method comprises:

receiving multiple coefficient blocks from the series of 2D-transform coefficient blocks;

grouping together respective elements from the multiple coefficient blocks to produce one block of 2D coefficient vectors; and

operating on the block of 2D coefficient vectors with SIMD instructions to carry out the 2D-IDCT on the multiple coefficient blocks.

Claim 20 (New) The computer system of claim 19, wherein the SIMD instructions are floating point instructions.

CONCLUSION

Claims 1 – 14 were pending in the application. Claims 15 – 20 have been added. Claims 1 – 20 accordingly remain pending in the application.

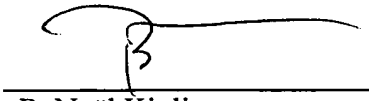
Added Claims 15 – 20 recite a carrier medium and a computer system including features corresponding to those of Claims 1 – 5.

The Office Action rejected claims 1 – 14 under the judicially created doctrine of double patenting as being unpatentable over U.S. patent application serial no. 09/613,015. A Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(b) to obviate the double patenting rejection has been filed along with this response. Accordingly, Applicants respectfully request removal of the double patenting rejection.

Applicants submit the application is in condition for allowance, and an early notice to that effect is requested.

A Fee Authorization is enclosed to cover the filing fees for a disclaimer; however, the Commissioner is authorized to charge any additional fees which may be required, or credit any overpayment, Meyertons, Hood, Kivlin, Kowert, & Goetzel, P.C. Deposit Account No. 50-1505/5500-59700.

Respectfully submitted,



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